

EDUCATION

**THE US ARMY  
SIGNAL SCHOOL  
APPRENTICESHIP  
PROGRAM FOR  
THE TRADE OF  
FIELD ENGINEER  
(MICROWAVE)**

Headquarters  
Department of the Army  
Washington, DC  
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**UNCLASSIFIED**

# ***SUMMARY of CHANGE***

DA PAM 621-114

THE US ARMY SIGNAL SCHOOL APPRENTICESHIP PROGRAM FOR THE TRADE OF FIELD ENGINEER  
(MICROWAVE)

This Change 1--

- o Adds the number 2000 to Appendix A.1, Para E, opposite line 8 which was omitted during printing.
- o

## EDUCATION

# THE US ARMY SIGNAL SCHOOL APPRENTICESHIP PROGRAM FOR THE TRADE OF FIELD ENGINEER (MICROWAVE)

### By Order of the Secretary of the Army:

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*General, United States Army*  
*Chief of Staff*

### Official:

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**History.** This publication was originally printed on 15 July 1981. Change 1 of this regulation was printed on 1 August 1982. The basic publication and Change 1 was authenticated by Robert M. Joyce, Brigadier General, United States Army, The Adjutant General; and E.C. Meyer, General, United States Army, Chief of Staff. This electronic edition publishes the basic 1981 edition and incorporates

Change 1. To make this publication compatible with the Army electronic publishing database, appendix A, the Work Process Schedule was changed to a table in appendix A.1; an appendix of references was inserted as appendix A.

**Summary.** The purpose of this pamphlet is to announce the US Army Signal School Apprenticeship program for the trade of Field Engineer (Microwave) (DOT Code 193.262-018).

**Applicability.** This pamphlet applies to all elements of the active Army. This pamphlet does not apply to Army National Guard and Army Reserve.

**Proponent and exception authority.** The proponent agency for this pamphlet is the Office of The Adjutant General.

**Interim changes.** Interim changes are not official unless they are authenticated by The Adjutant General. Users will destroy interim changes on their expiration dates unless sooner superseded or rescinded.

**Suggested Improvements.** Users are invited to send comments and suggested improvements on DA Form 2028 (Recommended Changes to Publications and Blank Forms) to Commander, US Army Signal Center and Fort Gordon, ATTN: ATZHPA-E, Fort Gordon, GA 30905.

**Distribution.** To be distributed in accordance with DA Form 12-9A requirements for DA Pamphlets, Education plus 5 copies each to All Education Centers and Sub-centers.

Active Army: B  
ARNG: None  
USAR: None

### Contents (Listed by paragraph and page number)

Purpose. • 1, *page 1*

Applicability. • 2, *page 1*

General. • 3, *page 1*

Apprenticeship Program Number and Occupational Skill Code. • 4, *page 1*

Eligibility for Participation in the Program. • 5, *page 1*

The Field Engineer (Microwave) Apprenticeship Program. • 6, *page 1*

Enrollment in the Program. • 7, *page 1*

Apprenticeship Log Forms. • 8, *page 1*

Credit for Previous Experience. • 9, *page 1*

Related Instruction Credit for Previous Military and Civilian Education. • 10, *page 2*

Completion of the Program. • 11, *page 2*

Partial Completers. • 12, *page 2*

### Appendixes

A. REFERENCES, *page 3*

\*This Pamphlet supercedes DA Pamphlet 621-114, May 1978.

## **Contents—Continued**

- A.1.** WORK PROCESS SCHEDULE FOR THE TRADE OF FIELD ENGINEER (MICROWAVE) (DOT CODE 193.2162–018), *page 3*
- B.** SCHEDULE OF RELATED INSTRUCTION FOR THE TRADE OF FIELD ENGINEER (MICROWAVE) (DOT CODE 193.262-018), *page 4*
- C.** EXAMPLE OF A PARTIAL COMPLETION LETTER, *page 6*

### **Table List**

Table A–1: Work Process Schedule for the Trade of Field Engineer (Microwave) (DOT Code 193.2162–018), *page 3*  
Table B–1: Schedule of Related Instruction for the Trade of Field Engineer (Microwave), *page 4*

### **Figure List**

Figure C: Example Of A Partial Completion Letter, *page 6*

## **1. Purpose.**

The purpose of this pamphlet is to announce the US Army Signal School Apprenticeship program for the trade of Field Engineer (Microwave) (DOT Code 193.262-018).

## **2. Applicability.**

This pamphlet applies to all elements of the active Army. This pamphlet does not apply to Army National Guard and Army Reserve.

## **3. General.**

Policies and procedures for participation in the program are contained in AR 621-5. This pamphlet is designed to be used in conjunction with that regulation.

## **4. Apprenticeship Program Number and Occupational Skill Code.**

*a.* The following apprenticeship program number and occupational skill code are used to identify the US Army Signal School Apprenticeship Program for the Trade of Field Engineer (Microwave).

(1) Apprenticeship Program Number: 99904.

(2) Occupational Skill Code: 19.

*b.* The apprenticeship program number and occupational skill code must be entered on DA Form 4409-R (Apprenticeship Application) to identify the program for which the soldier is making application.

## **5. Eligibility for Participation in the Program.**

Soldiers holding as primary or secondary one of the MOSs indicated below and serving in that MOS may participate in the program:

*a.* MOS 26L—Tactical Microwave Systems Repairer.

*b.* MOS 26Q—Tactical Microwave Satellite Operator.

*c.* MOS 26R—Strategic Satellite/Microwave Systems Operator.

*d.* MOS 26V—Strategic Microwave Systems Repairer.

## **6. The Field Engineer (Microwave) Apprenticeship Program.**

This is a 8,000-hour program which leads to certification as journeyworker in the trade of Field Engineer (Microwave). Participation in the program is voluntary, and no membership in labor unions or professional associations is required. The work process schedule and schedule of related instruction for the trade are attached (app A.1 and B). The purposes of the work process schedule and the schedule of related instruction are as indicated below:

*a.* The work process schedule reflects categories of work experience required by soldier-apprentices to qualify as journeyworker and hours of work experience required in each category.

*b.* The schedule of related instruction identifies courses which may be taken by soldier-apprentices to satisfy the 576 hours of related instruction required for completion of the program.

## **7. Enrollment in the Program.**

Soldiers may enroll in the program by contacting their installation education services officers (ESOs) who will explain requirements of the program and assist in the preparation of the apprenticeship application form (DA Form 4409-R).

## **8. Apprenticeship Log Forms.**

Apprenticeship log forms and instructions on use of forms will be issued to soldiers by installation ESOs at the time of registration in the program. Log instruction sheets will be maintained by soldiers in a three ring binder. Soldier-apprentices will be required to annotate their work experience on log sheets on a daily basis. The standard for the amount of work experience logged will be 132 hours per month. Hours logged above this standard amount must be justified in the remarks section of the daily work experience record and attested to by the signature and rank of the shop craft supervisor or an individual holding a comparable position. Log entries must be verified by the soldier-apprentice's immediate supervisor on a weekly basis.

## **9. Credit for Previous Experience.**

*a.* Newly enrolled soldier-apprentices who have partially completed an approved Federal or State registered civilian apprenticeship in the trade of Field Engineer (Microwave) or a related trade will, upon presentation of documentation, be awarded credit for all experience related to categories of work contained in the work process schedule at appendix A.1.

*b.* Up to 4,000 hours of credit for previous military work experience may be awarded upon presentation of authenticated documentation of satisfactory performance. Such experience must be directly related to the occupation in which the apprenticeship is being performed. Statements from previous supervisors or other such documentation which

certify category of work, number of hours by category, and quality of performance will be submitted by soldier-apprentices to their installation ESOs for consideration. ESOs will forward these documents to the Signal School, ATTN: ATZHPA-E for final determination.

#### **10. Related Instruction Credit for Previous Military and Civilian Education.**

Credit for previous military and civilian education may be awarded to satisfy related instruction requirements by presenting certificates of course completion or other such documentation from official military records or other sources. The installation ESO will determine the amount of credit to be awarded. The ESO will consult sponsor service schools, as required to determine the appropriate amount of credit for each course not listed in appendix B of this pamphlet.

#### **11. Completion of the Program.**

Upon successful completion of the program, a Certificate of Completion of Apprenticeship will be awarded by the US Department of Labor. While the award of a Certificate of Completion of Apprenticeship will not guarantee a job, it will certify that journeyworker status has been attained, and should enable completers of the program to be more competitive with civilians in the trade.

#### **12. Partial Completers.**

Soldiers leaving the service prior to completion of the program will receive documented credit for that portion of the program which they did complete. This documentation may be presented for satisfaction of requirements of civilian apprenticeship programs in the trade of Field Engineer (Microwave) or a related trade. (See app C).

## Appendix A REFERENCES

### Section I

#### Required Publications

This section contains no entries.

### Section II

#### Related Publications

This section contains no entries.

### Section III

#### Prescribed Forms

This section contains no entries.

### Section IV

#### Referenced Forms

This section contains no entries.

## Appendix A.1

### WORK PROCESS SCHEDULE FOR THE TRADE OF FIELD ENGINEER (MICROWAVE) (DOT CODE 193.2162-018)

#### A-1. Work Process Schedule for the Trade of Field Engineer (Microwave)

Paragraph not used.

Table A-1

Work Process Schedule for the Trade of Field Engineer (Microwave) (DOT Code 193.2162-018)

	<i>Hours</i>
A. Orientation to Installation and Operation of: microwave, troposcatter radio, satellite, multiplexing, associated security equipment and testing equipment.	500
B. Assemble and Position Equipment, Erect and Orient Antennas: interconnect power units and components. Prepare, start and adjust power units to prescribed levels. Make preoperative equipment checks.	2000
C. Adjust Equipment to Operate on Desired Frequency Within Specified Tolerance: time adjust and align operating equipment. Maintain contact with distant stations for operational checks. Post to station logs.	2000
D. Perform Organizational Maintenance on Equipment Utilizing Handtools and Test Equipment such as Transmission Test Sets, Frequency Selective Meter, Frequency Correctors, Oscilloscopes and Spectrum Analyzers.	1500
E. Apply Corrective Action for Nonfunction or Equipment Malfunctions: operate voice frequency and teletype order wires. Operate patch, test and interconnect facilities. Perform handover and power balancing procedures. Recognize/report electronic countermeasures. Apply electronic counter-countermeasures. Interpret and utilize maps, communications, charts, traffic diagrams and straight line power diagram. Prepare station reports and maintain station log.	2000
<b>TOTAL</b>	<b>8000</b>

#### A-2. Title not used.

Paragraph not used.

## Appendix B

### SCHEDULE OF RELATED INSTRUCTION FOR THE TRADE OF FIELD ENGINEER (MICROWAVE) (DOT CODE 193.262-018)

#### B-1. Schedule of Related Instruction for the Trade of Field Engineer (Microwave) (DOT Code 193.262-018)

A total of 576 hours or related instruction is required to complete this program. Completion of any one or a combination of the below listed courses which equals 576 hours of related instruction or more may be taken to satisfy this requirement. Credit for courses not listed below may be awarded upon presentation of authenticated documentation of satisfactory completion. A synopsis of the course must be submitted with documentation. Documentation and synopsis for courses not listed below will be forwarded by ESOs to the US Army Signal School, ATTN: ATZHPA-E, Fort Gordon, GA, 30905, for final determination.

**Table B-1**  
**Schedule of Related Instruction for the Trade of Field Engineer (Microwave)**

	Course Number	Course Title	School	Resident	Non-resident	Hours Credit
A.	101-26L10	Tactical Microwave Systems Repair Course (after 1 May 1978)	USASC	X		1363
B.	101-26L10	Tactical Microwave Systems Repair Operations, adn Maintenance (Prior to 1 May 1978)	USASC	X		575
C.	101-26L20	Tactical Microwave Systems (Prior to 1 May 1978)	USASC	X		1060
D.	101-26Q10	Tactical Microwave Satellite Operators Course	USASC	X		600
E.	101-26R10	Strategic Satellite/Microwave Operator Course	USASC	X		800
F.	101-26V10	Strategic Microwave Systems Repairer (after 1 May 1978)	USASC	X		1260
G.	101-26V10	Strategic Microwave Systems Operation and Maintenance (Prior to 1 May 1978)	USASC	X		650
H.	101-26V20	Strategic Microwave Systems Repair (Prior to 1 May 1978)	USASC	X		110
I.	102-F43	Navy SATCOM Operator	USASC	X		320
J.	4-3	Tactical Microwave Systems Repair (26L10) (Prior to 1 February 1979)	USASC		X	71
K.	4-4	Tactical Microwave Systems Repair Course (26L20) (Prior to 1 February 1979)	USASC		X	163
L.	5-3	Tactical Microwave Systems Repair Course (26L10) (after 1 February 1979)	USASC		X	150
M.	5-5	Tactical Microwave Systems Operator (Course 26½10)	USASC		X	47
N.	6-12	Strategic Satellite/Microwave Systems Operator Course (26R10)	USASC		X	140
O.	4-6	Strategic Microwave Systems Repair Course (26V20) (Prior to 1 February 1979)	USASC		X	172
P.	6-13	Strategic Microwave Systems Repair Course (after 1 February 1979)	USASC		X	170
Q.	6-3	Basic Electronics	USASC		X	47
R.	6-4	Radio Fundamentals	USASC		X	71
S.	7-5	Satellite Communications Course	USASC		X	94
T.	SSO-002	Introduction to Tactical Radio Communications	USASC		X	12
U.	SSO-014	Tactical Radio Systems	USASC		X	11
V.	SSO-018	Communication Power Equipment	USASC		X	5
W.	SS9-018	Communication Power Equipment (SOJT)	USASC		X	6
X.	SSO-057	Electronic Communications Systems	USASC		X	7
Y.	SSO-058	Communications-Electronics Application	USASC		X	11
Z.	SSO-060	Long Distance Radio Systems	USASC		X	16
AA.	SSO-301	Electrical Fundamentals-DC	USASC		X	12
BB.	SSO-303	Electrical Fundamentals-AC	USASC		X	9
CC.	SSO-304	Electrical Networks	USASC		X	11
DD.	SSO-308	Introduction to Electricity	USASC		X	6
EE.	SSO-309	Introduction to Electronics	USASC		X	10
FF.	SSO-325	Radio Wave Propagation	USASC		X	10
GG.	SSO-344	Microwave Techniques	USASC		X	13
HH.	SSO-392	Satellite Communications Fundamentals	USASC		X	5
II.	SSO-393	Satellite Communications Techniques and Devices	USASC		X	17
JJ.	SSO-394	Satellite Acquisition and Tracking Techniques	USASC		X	10
KK.	SSO-395	Satellite Communication Systems	USASC		X	7
LL.	SSO-396	Satellite Communication Ground Terminals	USASC		X	10
MM.	SSO-443	Operation of Electronic Voltmeter ME-30( )/V (SOJT)	USASC		X	2
NN.	SSO-450	Basic Communications Principles	USASC		X	5
OO.	SSO-462	Basic Test Equipment-Operation	USASC		X	9
PP.	SS9-462	Basic Test Equipment-Operation (SOJT)	USASC		X	12
QQ.	SSO-468	Test Meters Operation	USASC		X	4
RR.	SSO-651	Shop Practices and Safety	USASC		X	3



**Table B-1**  
**Schedule of Related Instruction for the Trade of Field Engineer (Microwave)—Continued**

Course Number	Course Title	School	Resident	Non-resident	Hours Credit
SS. None	Common Basic Electronic Training	ATS Ft.Jackson	X		120
TT. None	Basic Electronic Training	USASC		X	320

Notes:

<sup>1</sup> Indicate course number if course is offered by an Army Service School.

<sup>2</sup> Indicate course title, regardless of source of course, i. e., service school, vocational/technical, etc.

<sup>3</sup> Indicate name of service school teaching course. If course taught by public school, indicate type of school, i.e., college, vocational/technical, trade school, etc.

<sup>4 & 5</sup> Indicate whether course is resident or nonresident by placing X under proper category.

<sup>6</sup> For service school courses, indicate actual numbers of hours of instruction included in POI. For nonservice school courses, indicated "actual classroom hours," and that these hours must be verified by institution offering course.

**B-2. Title not used.**

Paragraph not used.

**Appendix C**  
**EXAMPLE OF A PARTIAL COMPLETION LETTER**

**C-1. Example Of A Partial Completion Letter**

Paragraph not used.

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(Enter Office Symbol)

(Enter Date)

TO WHOM IT MAY CONCERN:

This is to certify that \_\_\_\_\_ was enrolled in the Army  
(Name)

Apprenticeship Program for \_\_\_\_\_  
(Name of Occupational Skill Area)

\_\_\_\_\_ During this period \_\_\_\_\_ to \_\_\_\_\_. During that period  
(Registration Number) (Date) (Date)

he successfully completed the following hours:

<i>Work Process</i>	<i>Hours</i>
A	_____
B	_____
_____	_____
_____	_____

Army Apprentice Programs are registered with the US Department of Labor and the fact that this individual did participate can be verified with the Bureau of Apprenticeship and Training, Patrick Henry Building, Washington, DC 20213, or by contacting Headquarters, TRADOC, ATTN: ATPL-AGE, Fort Monroe, VA, 23651.

Sincerely,

ESO's SIGNATURE BLOCK

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**Figure C. Example Of A Partial Completion Letter**

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**C-2. Title not used.**

Paragraph not used.

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